

Description

Ball Return Device

BACKGROUND OF INVENTION

FIELD OF INVENTION

[0001] The present invention generally relates to a ball return apparatus and particularly to a ball return apparatus configured for use on a standard game table having a net, such as a table tennis table.

DISCUSSION OF RELATED ART

[0002] A common problem in the game of table tennis occurs when a ball is caught by the net and either spins off the table or remains at the base of the net. Devices to return a table tennis ball to a user are currently available, but are complicated and expensive and do not solve the problem of balls hung up at the net that are difficult for shorter players to reach. Some such devices are positioned along the sides of the table to capture balls that stray off the table and roll them back to the end of the table where the player is typically positioned. Unfortunately, these devices

do not aid in directing a ball towards the player in situations where the ball hits the net and loses its momentum. Here, the ball tends to stop near the net on the table surface. Devices designed only to redirect balls that have fallen to the sides do not address this problem. US 6,050,625 discloses one such device and is configured to be attached along the side edges of a table tennis table and only assists in moving balls towards the player when the ball has rolled to the sides and off the table. In Japanese Patent JP10192469, a ball return device is disclosed that is configured to be attached on the table top near the ends of the net, and again is designed only for redirecting balls that have strayed to the sides of the table.

- [0003] Other complicated table tennis ball retrieval devices are configured to attach to a table such that one person may practice or play against himself. Again, this type of system does not aid in facilitating the movement of balls that lose their momentum and remain near the net. This system also does not redirect balls that stray to the sides of the table during play between two players.
- [0004] Thus there is a desire and need in the art for a simple device to facilitate ball retrieval when a ball is hit into a net

that is either moving in the direction of escaping, for example an area to the sides, or has lost its momentum and stops at a location at or near the net.

SUMMARY OF INVENTION

- [0005] Accordingly, the present invention provides a simple, inexpensive device configured to facilitate ball retrieval during the play of a game, such as a game table having a net (e.g., table tennis), but does not significantly interfere with play. The apparatus of the present invention is lightweight and may easily attach to a standard table tennis game table, and is configured to redirect balls moving towards the sides of the table or those that have lost their momentum and have stopped at or near the net on the table surface. The apparatus may also be easily removed and stored in the event a match using formal rules of table tennis is to be played.
- [0006] In one embodiment of the present invention, a ball return apparatus to facilitate ball retrieval during play on a game table having a net includes an elongated first ramp member adapted to be positioned substantially parallel and adjacent to the net. The first ramp member being sloped to facilitate movement of a ball away from the net, and towards a player when a ball hits the net during play.

- [0007] In another embodiment of the present invention a ball return apparatus to facilitate ball retrieval during play on a game table having a net includes a first and second ramp member adapted to be positioned on the game table on opposite sides of the net and substantially parallel and adjacent to the net. The first and second ramp members being sloped to facilitate movement of a ball away from the net and towards a player positioned at an end of the game table.
- [0008] Other features of the present invention will become more apparent to persons having ordinary skill in the art to which the present invention pertains from the following description and claims taken in conjunction with the accompanying figures.

BRIEF DESCRIPTION OF DRAWINGS

- [0009] The foregoing features, as well as other features, will become apparent with reference to the description and figures below, in which like numerals represent like elements, and in which:
- [0010] Figure 1 is a perspective view of an embodiment of the ball return apparatus of the present invention positioned on a standard table tennis table;
- [0011] Figure 2 is a perspective view of an embodiment of the

ball return apparatus of the present invention;

- [0012] Figure 3 is a side view of the embodiment of a ball return apparatus shown in Figure 1;
- [0013] Figure 4 is an exploded perspective view of an embodiment of the ball return apparatus of the present invention;
- [0014] Figure 5 is a sectional view taken along line 5-5 in Figure 1;
- [0015] Figure 6 is a perspective view of an end bracket of the present invention;
- [0016] Figure 7 is a back view of an end of a ramp member of the present invention; and
- [0017] Figure 8 is an exploded perspective view of an embodiment of the present invention.

DETAILED DESCRIPTION

- [0018] While the invention has been described in conjunction with specific embodiments, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, the present invention attempts to embrace all such alternatives, modifications and variations that fall within the spirit and scope of the appended claims.
- [0019] The present invention generally relates to a ball return ap-

paratus configured to be positioned on a standard game table having a net, such as a table tennis table (ping pong). After a table tennis rally, the ball is often stopped in a position such that neither player is able to reach it without walking around the table to the side, and/or reaching across the table to retrieve it. This is especially true for younger or shorter players. Also, when a player strikes the ball into the net, the net's shock absorbing qualities often leave the ball very close to, if not touching the net. Leaving the playing position to retrieve the ball may be distracting and time consuming and result in less playing time and less enjoyment for the players. The ball return apparatus of the present invention is a simple and cost effective device that effectively redirects balls towards the player positioned at the end of the table that would otherwise be moving towards the sides of the table. It also redirects balls that may have lost momentum and remain near or touching the net. The apparatus of the present invention is not allowed by the formal rules of table tennis, but is ideal for casual play and practice while not significantly affecting play.

- [0020] Referring now to the figures, a ball return apparatus 20 of the present invention may include an elongated first ramp

member 22 configured to be positioned adjacent and parallel to a net 26 on a standard table tennis table 48 as shown in Figure 1. The first ramp member 22 may extend laterally across the width of table 48 (typically approximately 122 cm (48 inches) by convention and rule) and extend substantially to the side edges of table 48. First ramp member 22 includes a lower edge 50 and a top edge 52 and may be positioned adjacent to net 26 such that first ramp member 22 is angled downwardly and away from net 26 to help facilitate the redirection of balls that may hit net 26 or first ramp member 22 and roll down first ramp member 22 onto table 48.

- [0021] In one embodiment, first ramp member 22 is positioned such that top edge 52 is positioned below a top edge of net 26, and lower edge 50 contacts a top surface of table 48 at a location spaced from said net. Ideally, first ramp member 22 will be positioned close to net 26 or touching net 26 along its length. This close positioning will ensure that balls will not fall after hitting net 26 and get trapped between net 26 and first ramp member 22. First ramp member 22 may be constructed of a variety of inexpensive materials such as plastic, aluminum, rubber, or steel. Since the balls used in table tennis are extremely

lightweight, it is not necessary to construct first ramp member 22 out of a robust material. Preferably, first ramp member 22 would be constructed of a lightweight material such as plastic or aluminum to reduce the cost to manufacture and ship and to provide a device that is lightweight and easy to handle by the user.

- [0022] During play, as a ball hits net 26, if it does not return to the player it will tend to either roll towards a side and eventually off table 48, or lose its momentum and come to a stop at or near net 26. Ball return apparatus 20 is configured to facilitate the movement of such balls towards a player positioned at an end of table 48. First ramp member 22 is configured to be positioned adjacent to net 26 such that the missed balls roll onto first ramp member 22 and towards the player at the end of the table. First ramp member 22 prevents balls from losing their momentum and hanging up or stopping near net 26 and also facilitates redirecting the movement of a ball that would otherwise tend to roll towards the side of table 48.
- [0023] The ball return apparatus 20 may also include at least one support element 28 connected to a back side of first ramp member 22 supporting upper edge 52 of first ramp member 22 as more clearly shown in Figures 2 through 6. Sup-

port element 28 may include one continuous substantially vertical member configured to support first ramp member 22 on table 48. Alternatively, support element 28 may include segmented pieces spaced along the length of first support member 22. Support element 28 may also be configured as a horizontal support as shown in the embodiment of Figure 4. Ideally, support member 28 will be designed not to interfere with any standard support element of net 26.

- [0024] First ramp member 22 may also include end brackets 32 and 34 connected on opposing ends of first ramp member 22 as shown in Figures 1 and 2. End brackets 32 and 34 may include a deflecting surface 36 and a flange 38 as shown in Figure 6. End brackets 32 and 34 may also include an extension portion 59 as shown in Figures 1, 3 and 6. Extension portion 59 may be angled relative to deflecting surface 36 or one continuous curvilinear portion, to direct a ball rolling against bracket 32, 34 away from the edge of the playing surface and towards the center of the playing surface.
- [0025] End brackets 32 and 34 may also be constructed of a variety of materials similar to first ramp member 22. Flange 38 may be connected to a bottom side of first ramp mem-

ber 22, or formed integrally with first ramp member 22, adjacent an end of first ramp member 22 by any of a variety of means (See Figure 7). For example, the attachment of flange 38 to first ramp member 22 may be achieved by an adhesive attachment, friction or snap connection, welds, interlocking members, screws, clips, and the like. When end brackets 32 and 34 are connected to first ramp member 22, deflecting surface 36 will extend substantially perpendicular and vertically above a top surface of first ramp member 22 as shown in Figures 1, 2 and 3. Deflecting surface 36 and extension portion 59 are configured to assist in redirecting the motion or movement of missed balls that have hit the net 26 and are traveling towards a side of the table. The ball will hit into deflecting surface 36 (and/or extension 59) and be redirected inwardly towards the middle of the table where it may roll down first ramp member 22 towards the player at the end of the table.

- [0026] In an alternate embodiment, first ramp member 22 may include two or more sections, such as sections 40 and 42 shown in Figures 2 and 4. By providing first ramp member 22 in sections, smaller packaging may be utilized for shipping and marketing the ball return apparatus 20. In

this embodiment, sections 40 and 42 may be connected by any of a variety of attachment methods such as the friction fit connection shown in Figure 4. For this connection, one of sections 40 and 42 may include a hole 44 and the other may include a tab 46 configured to be slidably received within hole 44. Tab 46 and hole 44 may be sized such that a friction fit between the two components is achieved. Other types of attachments may include a snap fit, brackets, screws, clips or any other attachment that will hold the sections 42 and 44 together. Again, because of the lightweight balls used in table tennis, a substantial or robust connection is not required.

- [0027] Another optional embodiment of first ramp member 22 may include a two part telescoping configuration as shown in Figure 8. In this embodiment, first ramp member 22 may include a hollow first section 40' configured to receive a second section 42' therein in a telescoping fashion. When not in use, second section 42' could be slidably received within hollow first section 40' to shorten the length of first ramp member 22 and allow for easier storage and transport. This configuration would also allow the user to slidably adjust the length of ball return apparatus 20 by sliding second section 42' out from first section 40'

to a desired length to fit a particular width of game table.

- [0028] The present invention can be utilized as a single ramp member on only one side of the net on a game table as has been described above, or alternatively may include two ramp members positioned on opposing sides of the net. In this embodiment, a first ramp member 22 and a second ramp member 24 may be positioned as shown in Figure 3. Second ramp member 24 may be constructed in the same manner as first ramp member 22 and be positioned on table 48 on an opposite side of net 26 from first ramp member 22. Second ramp member 24 may likewise include at least one support element 28, as with first ramp member 22, and may be constructed as one unitary component, or alternatively include a plurality of sections connected together. End brackets 32 and 34 may also be attached to second ramp member 24 in the same manner as first ramp member 20 and may optionally include extension portion 59 for further deflection capabilities.
- [0029] To ensure the ball return apparatus is securely held in position, first and second ramp members 22 and 24 may be connected together as shown in Figure 5. The connection also helps ensure balls that hit the net will not fall down between first and second ramp members 22 and 24. First

and second ramp members 22 and 24 may be connected using a variety of attachment methods known in the art, such as a hook attachment as shown in Figure 5. To facilitate the attachment of first and second ramp members 22 and 24, first and second ramp members 22 and 24 may include one or more apertures 54 near top edge 52. Apertures 54 may be positioned at substantially the same location along the length of first and second ramp members 22 and 24 to allow for a connection between the two components through net 26. In the hook attachment embodiment shown in Figure 5, a strap 56 extends between first and second ramp members 22 and 24 and through net 26 in a manner such that the apertures do not interfere with the operation of the apparatus if the attachment of first and second ramp members 22 and 24 is not used. Strap 56 may be constructed of a rigid material such as a rigid plastic, metal or the like, or alternatively out of a flexible material such as wire, string, cord, flexible plastic and the like. Strap 56 may also include a hook 58 on opposing ends of strap 56 that hook onto apertures 54 to hold first and second ramp members 22 and 24 together. Other attachment methods may also be used, such as a simple string that loops through apertures 54 that may be

tied to hold first and second ramp members 22 and 24 together, or an opposing magnetic connection (such as a magnet on one ramp member and a metallic component on the other ramp member) may be included on first and second ramp members 22 and 24 to magnetically connect the ramp members together. All the attachment methods described must be configured to ensure the attachment does not interfere with the proper operation of ball return apparatus 20.

- [0030] Although ball return apparatus 20 has been described for use on a table tennis table, it is to be understood that the same principles apply in the game of tennis played on a tennis court. The apparatus can easily be configured in a larger configuration to be utilized with this type of tennis activity.
- [0031] While the invention has been described in conjunction with specific embodiments, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, the present invention attempts to embrace all such alternatives, modifications and variations that fall within the spirit and scope of the appended claims.